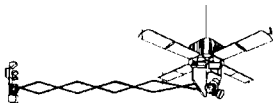
MAGSAT

Magnetic Field Satellite

Spacecraft Sketch	Mission Objective
	The mission objectives of the Magnetic Field Satellite (MAGSAT) are to: 1) obtain an accurate, up-to-date quantitative description of the Earth's main magnetic field; 2) provide the data and a worldwide magnetic field model suitable for the USGS update and refinement of world and regional magnetic charts; 3) compile a global scalar and vector crustal magnetic anomaly map; and 4) interpret the crustal anomaly map, in conjunction with correlative data, and in terms of geologic/geophysical models of the Earth's crust, thus providing information for assessment of natural resources and future exploration strategy.

TYPE OF MISSION	PROGRAM OFFICE	PROJECT LEAD CENTER	MANAGEMENT APPROACH	S/C CONTRACTOR	I&T CONTRACTOR
RESOURCE OBSERVATION	APPLICATIONS	GSFC	HYBRID	JHU/APL	JHU/APL

Payload Description
The Magnetic Field Satellite (Magsat) payload consists of two distinct parts: an instrument module and a base module. The instrument module houses a scalar and a vector magnetometer, two star cameras and an attitude transfer system which is used to determine the relative orientation of the star cameras and the vector magnetometer. The base module - consisting of residual SAS-C hardware - contains the data handling, power, communications, command and attitude control subsystems. The solar array consists of four deployable panels hinged to the spacecraft structure. The communications system includes an S-band transponder and antenna system. The attitude control system maintains a low-earth, near-polar, Sun-synchronous orbit.

INSTRUMENT NAME	ACRONYM	PI AFFILIATION	PRINCIPAL INVESTIGATOR	I&T CONTRACTOR
SCALAR MAGNETOMETER	NONE	GSFC	R. A. LANGEL	BASD
VECTOR MAGNETOMETER	NONE	GSFC	M. H. ACUNA	GSFC

Instrument Descriptions
The Magsat Scalar Magnetometer, Data Point 526, is designed and built by BASD, Western Laboratories. The instrument contains two-dual-cell cesium-vapor sense heads whose output frequency varies in proportion to the total magnetic field. The purpose of the magnetometer is to return scalar field data and to provide calibration for the precision vector magnetometer.
The Magsat Vector Magnetometer, Data Point 545, is designed and built in-house at GSFC. This instrument, which is the prime instrument on Magsat, includes digitally controlled sources to increase dynamic range and includes ultraprecision components and extremely efficient designs to minimize power consumption.

Launch
10/30/79